

## **IN THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (presently amended) A method, comprising:  
  
    identifying a combination of fields in a header of an internet protocol  
  
    ~~version 4~~ (hereinafter IPv4) packet, wherein the combination is  
  
    dynamically modifiable; and  
  
    utilizing the combination of fields to classify the IPv4 packet.
2. (presently amended) The method according to claim 1, further  
  
    comprising:
  - a. constructing a key according to information in a key construction  
        register;
  - b. identifying a tag that corresponds to the key from a table of key-tag  
        entries in a memory device; and
  - c. inserting the tag in the header of IPv4 packet in accordance to  
        information in a tag insertion register.
3. (presently amended) The method according to claim 2, wherein the  
  
    information in the key construction register indicates a retrieval location in  
  
    the header of IPv4 packet and a number of bits from the retrieval location  
  
    to consider in constructing the key.

4. (presently amended) The method according to claim 2, wherein the information in the tag insertion register indicates a number of bits to retrieve from the tag and an insertion location in the header of IPv4 packet to insert the tag.
5. (presently amended) A broadband engine, comprising:
  - a. a transceiver module; and
  - b. a lookup module, coupled to an external processor via an external processor interface, an external content adjustable memory and the transceiver module, further including:
    - a processing core to classify an internet protocol ~~version 4~~ (hereinafter IPv4) packet by utilizing a dynamically modifiable combination of fields in a header of the IPv4 packet.
6. (original) The broadband engine according to claim 5, the transceiver module further
  - a. collects a portion of incoming packets; and
  - b. appends control information to the collected portion.
7. (presently amended) The broadband engine according to claim 5, the lookup module further comprising:

- a. a plurality of registers to contain key construction information and tag insertion information from the external processor ~~central processing unit~~; and
  - b. the processing core to construct a key according to the key construction information, retrieve a tag that corresponds to the key from the external content adjustable memory and insert the tag in a header of one of the packets based on the tag insertion information.
8. (presently amended) The broadband engine according to claim 7, wherein the key construction information further comprises:  
a retrieval location in the header of IPv4 packet and a number of bits from the retrieval location to consider in constructing the key.
9. (presently amended) The broadband engine according to claim 7, wherein the tag insertion information further comprises:  
a number of bits to retrieve from the tag and an insertion location in the header of IPv4 packet to insert the tag.
10. (presently amended) A line card, comprising:  
an input/output interface;  
a switch fabric interface to communicate with a switch fabric; and  
a broadband engine, coupled to the input/output interface and the switch fabric interface, further including:

- a. a transceiver module to receive a plurality of packets from the input/output interface; and
  - b. a lookup module, coupled to an external content adjustable memory, the transceiver module and an external processor, further including:
    - a processing core to classify an internet protocol ~~version-4~~ (hereinafter IPv4) packet by utilizing a dynamically modifiable combination of fields in a header of the IPv4 packet.
11. (original) The line card according to claim 10, the transceiver module further
- a. collects a portion of incoming packets; and
  - b. appends control information to the collected portion.
12. (currently amended) The line card according to claim 10, the lookup module further comprising:
- a. a plurality of registers to contain key construction information and tag insertion information from the external processor ~~central processing unit~~; and
  - b. the processing core to construct a key according to the key construction information, retrieve a tag that corresponds to the key from the external content adjustable memory and insert the tag in a header of one of the packets based on the tag insertion information.

13. (presently amended) The line card according to claim 12, wherein the key construction information further comprises:
- a retrieval location in the header of IPv4 packet and a number of bits from the retrieval location to consider in constructing the key.
14. (presently amended) The line card according to claim 12, wherein the tag insertion information further comprises:
- a number of bits to retrieve from the tag and an insertion location in the header of IPv4 packet to insert the tag.
15. (presently amended) A communication system, comprising:
- a. a switch fabric;
  - b. a main processing engine with an processor; and
  - c. a line card, coupled to the switch fabric via a switch fabric interface, further including:
    - an input/output interface;
    - a broadband engine, coupled to the input/output interface and the switch fabric interface, further comprising:
      - i. a transceiver module to receive a plurality of packets from the input/output interface; and
      - ii. a lookup module, coupled to an external content adjustable memory, the transceiver module and the processor, further including:

a processing core to classify an internet protocol ~~version 4~~  
(hereinafter IPv4) packet by utilizing a dynamically  
modifiable combination of fields in a header of the IPv4  
packet.

16. (original) The communication system according to claim 15, the transceiver module further
  - a. collects a portion of incoming packets; and
  - b. appends control information to the collected portion.
17. (Presently Amended) The communication system according to claim 15, the lookup module further comprising:
  - a. a plurality of registers to contain key construction information and tag insertion information from the an external central processing unit; and
  - b. the processing core to construct a key according to the key construction information, retrieve a tag that corresponds to the key from the external content adjustable memory and insert the tag in a header of one of the packets based on the tag insertion information.
18. (presently amended) The communication system according to claim 17, wherein the key construction information further comprises:  
  
a retrieval location in the header of IPv4 packet and a number of bits from the retrieval location to consider in constructing the key.

19. (presently amended) The communication system according to claim 17, wherein the tag insertion information further comprises:  
a number of bits to retrieve from the tag and an insertion location in the header of IPv4 packet to insert the tag.